

SEQUENCE LISTING



<10> Mitchell, Lloyd
Garcia-Blanco, Mariano M.
Puttaraju, Madaiah
Mansfield, Gary S.

<120> METHODS OF COMPOSITIONS FOR USE IN
SPLICEOSOME MEDIATED RNA TRANS-SPlicing

<130> A31304-BAE (072874.0156)

<140> 09/941,492
<141> 2001-08-29

<150> 09/838,858
<151> 2001-04-20

<150> 09/756,096
<151> 2001-01-08

<150> 09/158,863
<151> 1998-09-23

<150> 09/133,717
<151> 1998-08-13

<150> 09/087,233
<151> 1998-05-28

<150> 08/766,354
<151> 1996-12-13

<160> 125

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 132
<212> DNA
<213> Homo sapien

<400> 1
caggggacgc accaaggatg gagatgttcc agggcgctga tcatgttgg tattcttctt
60
aaatcttttg tcatggaaaa cttttcttcg taccacggga ctaaacctgg ttatgttagat

120
tccattcaaa aa
132

<210> 2
<211> 29
<212> DNA
<213> Corynebacterium diphtheriae

<400> 2
ggcgctgcag ggcgctgatg atgttgtt
29

<210> 3
<211> 36
<212> DNA
<213> Corynebacterium diphtheriae

<400> 3
ggcgaagctt ggatccgaca cgatttcctg cacagg
36

<210> 4
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 4
aattctctag atgcttcacc cgggcctgac tcgagttacta actggtaacct cttcttttt
60
ttccttgca
68

<210> 5
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 5
ggaaaaaaaaaa gaagaggtac cagtttagtac tcgagtcagg cccgggtgaa gcatctagag
60

<210> 6
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 6
tcgagcaacg ttataataat gttc
24

<210> 7
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 7
tcgagaacat tattataacg ttgc
24

<210> 8
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 8
aattctctag atcaggcccg ggtgaagcac tcgag
35

<210> 9
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 9
tgcttcaccc gggcctgatc tagag
25

<210> 10
<211> 18
<212> DNA
<213> Homo sapien

<400> 10
tgcttcaccc gggcctga
18

<210> 11
<211> 16
<212> DNA
<213> Homo sapien

<400> 11
ctcttctttt ttttcc
16

<210> 12
<211> 18
<212> DNA
<213> Homo sapien

<400> 12
caacgttata ataatgtt
18

<210> 13
<211> 16
<212> DNA
<213> Homo sapien

<400> 13
ctgtgattaa tagcgg
16

<210> 14
<211> 16
<212> DNA
<213> Homo sapien

<400> 14
cctggacgcg gaagtt
16

<210> 15
<211> 51

<212> DNA

<213> Homo sapien

<400> 15

ctgggacaag gacactgctt caccgggtta gtagaccaca gccctgaagc c
51

<210> 16

<211> 17

<212> DNA

<213> Homo sapien

<400> 16

cttctgtttt ttttctc
17

<210> 17

<211> 16

<212> DNA

<213> Homo sapien

<400> 17

cttctgtatt attctc
16

<210> 18

<211> 16

<212> DNA

<213> Homo sapien

<400> 18

gttctgtcct tgtctc
16

<210> 19

<211> 29

<212> DNA

<213> Corynebacterium diphtheriae

<400> 19

ggcgctgcag ggcgctgatg atgttgtt
29

<210> 20

<211> 36

<212> DNA

<213> Corynebacterium diphtheriae

<400> 20
ggcgaagctt ggatccgaca cgatttcctg cacagg
36

<210> 21
<211> 21
<212> DNA
<213> *Corynebacterium diphtheriae*

<400> 21
catcgtaata atttccttgt g
21

<210> 22
<211> 20
<212> DNA
<213> *Corynebacterium diphtheriae*

<400> 22
atggaatcta cataaccagg
20

<210> 23
<211> 20
<212> DNA
<213> *Corynebacterium diphtheriae*

<400> 23
gaaggctgag cactacacgc
20

<210> 24
<211> 20
<212> DNA
<213> *Corynebacterium diphtheriae*

<400> 24
cgccaccgtg gccgaagtgg
20

<210> 25
<211> 30
<212> DNA
<213> *Homo sapien*

<400> 25
accggaattc atgaagccag gtacaccagg
30

<210> 26
<211> 20
<212> DNA
<213> Homo sapien

<400> 26
gggcaagggtg aacgtggatg
20

<210> 27
<211> 19
<212> DNA
<213> Homo sapien

<400> 27
atcaggagtg gacagatcc
19

<210> 28
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 28
gcatgaattc ggtaccatgg gggggttctc atcatcatc
39

<210> 29
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 29
ctgaggatcc tcttacctgt aaacgccccat actgac
36

<210> 30
<211> 38
<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 30

gcatggtaac cctgcagggc ggcttcgtct gggactgg
38

<210> 31

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 31

ctgaaagctt gttaacttat tattttgac accagacc
38

<210> 32

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 32

gcatggtaac cctgcagggc ggcttcgtct aataatggga ctgggtg
47

<210> 33

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the beta
HCG6 gene (accession #X00266)

<400> 33

gcatggatcc tccggagggc ccctgggcac cttccac
37

<210> 34

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the beta
HCG6 gene (accession #X00266)

<400> 34

ctgactgcag ggtaaccgga caaggacact gcttcacc

38

<210> 35

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the beta
HCG6 gene (accession #X00266)

<400> 35

gcatggtaac cctgcagggg ctgctgctgt tgctg

35

<210> 36

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the beta
HCG6 gene (accession #X00266)

<400> 36

ctgaaagctt gttaaccagc tcaccatggt gggcag

37

<210> 37

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 37
ggctttcgct acctggagag ac
22

<210> 38
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 38
gctggatgcg gcgtgcggtc g
21

<210> 39
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 39
cggcaccgtg gccgaagtgg
20

<210> 40
<211> 45
<212> DNA
<213> Homo sapien

<400> 40
acctgggccc acccattatt aggtcattat ccgcggaaaca ttata
45

<210> 41
<211> 35
<212> DNA
<213> Homo sapien

<400> 41
acctctgcag gtgaccctgc agaaaaaaa agaag
35

<210> 42

<211> 30

<212> DNA

<213> Homo sapien

<400> 42

acctctgcag acttcacttc taatgatgat

30

<210> 43

<211> 51

<212> DNA

<213> Homo sapien

<400> 43

acctgcggcc gcctaatgat gatgatgatg atgctttct agttggcatg c

51

<210> 44

<211> 32

<212> DNA

<213> Homo sapien

<400> 44

gacctctcga gggatttggg gaattatttg ag

32

<210> 45

<211> 35

<212> DNA

<213> Homo sapien

<400> 45

ctgacacctgcg gccgctacag tgttgaatgt ggtgc

35

<210> 46

<211> 35

<212> DNA

<213> Homo sapien

<400> 46

ctgacacctgcg gccgccccaac tatctgaatc atgtg

35

<210> 47

<211> 32

<212> DNA
<213> Homo sapien

<400> 47
gacctcttaa gtagactaac cgattgaata tg
32

<210> 48
<211> 21
<212> DNA
<213> Homo sapien

<400> 48
ctaatgatga ttagatgtat g
21

<210> 49
<211> 21
<212> DNA
<213> Homo sapien

<400> 49
cgccctaatga ttagatgtat g
21

<210> 50
<211> 21
<212> DNA
<213> Homo sapien

<400> 50
cttcttggta ctccctgtcct g
21

<210> 51
<211> 32
<212> DNA
<213> Homo sapien

<400> 51
gacctctcga gggatttggg gaattatgg ag
32

<210> 52
<211> 21
<212> DNA
<213> Homo sapien

<400> 52
aactagaagg cacagtcgag g
21

<210> 53
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Trans-spliced product containing human chorionic
gonadotropin gene 6 sequences and Corynebacterium
diphtheriae toxin A sequence

<400> 53
gagatgttcc agggcgtgat gatg
24

<210> 54
<211> 127
<212> RNA
<213> Artificial Sequence

<220>
<223> PTM intramolecular base paired stem

<221> misc_feature
<222> (57)...(70)
<223> Loop comprising a combination of 14 nucleotides
according to the specification

<400> 54
gcuagccugg gacaaggaca cugcuucacc cgguuaguag accacagccc ugagccnnnn
60
nnnnnnnnnn aucguuaacu aauaaacuac uaacugggug aacuucuguu uuuuucucga
120
gcugcag
127

<210> 55
<211> 127
<212> RNA
<213> Artificial Sequence

<220>
<223> PTM intramolecular base paired stem

<221> misc_feature

<222> (57) . . . (70)

<223> Loop comprising a combination of 14 nucleotides according to the specification

<400> 55

gcuagccugg gacaaggaca cugcuccacc cgguuaguag accacagccc ugagccnnnn
60
nnnnnnnnnn aucguuaacu aauaaacuac uaacugggug aacuucugua uuauucucga
120
gcugcag
127

<210> 56

<211> 127

<212> RNA

<213> Artificial Sequence

<220>

<223> PTM intramolecular base paired stem

<221> misc feature

<222> (57) $\bar{.}$ (70)

<223> Loop comprising a combination of 14 nucleotides according to the specification

<400> 56

gcuuagccugg gacaaggaca cugcuucacc cgguuaguag accacagccc ugagccnnnn
60

nnnnnnnnnnn aucguuaacu aauaaacuac uaacugggug aaguucuguc cuugucucga
120

gcugcaq

127

<210> 57

<211> 132

<212> DNA

<213> Artificial Sequence

<220>

<223> Trans-spliced product containing human chorionic gonadotropin gene 6 sequences and *Corynebacterium diphtheriae* toxin A sequences

<400> 57

caggggacgc accaaggatg gagatgttcc agggcgctga tcatgttgg tattcttctt

60

aaatctttg tgatggaaaa ctttcttcg taccacggga ctaaacctgg ttatgttagat
120

120

tccattcaaa aa

132

<210> 58

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificial sequence derived from Escherichia coli
lacZ gene

<400> 58

gaattcggta ccatgggg

18

<210> 59

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificial sequence derived from Escherichia coli
lacZ gene

<400> 59

cgtttacagg taagaggatc ctccggaggg ccc

33

<210> 60

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificial sequence derived from Escherichia coli
lacZ gene

<400> 60

tggtgtcaaa aataataagt taacaagctt

30

<210> 61

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Trans-spliced product containing Escherichia coli
lacZ and human chorionic gonadotropin gene 6
sequences

<400> 61
cagcagcccc tgtaaacggg gatac
25

<210> 62
<211> 286
<212> DNA
<213> Artificial Sequence

<220>
<223> Trans-spliced product containing Escherichia coli
lacZ gene sequences

<400> 62
ggctttcgct acctggagag acgcgcccgc tgatccttg cgaatacgcc cacgcgatgg
60
gtaacagtct tggcggttgc gctaaataact ggcaggcggt tcgtcagttat ccccgttac
120
agggcggctt cgtctaataa tgggactggg tggatcagtc gctgattaaa tatgtatgaaa
180
acgggcaacc cgtggtcggc ttacggcggt gattttggcg atacgcccga cgatcgccag
240
ttctgtatga acggtctggt ctttgcgcac cgcacgcccgc atccag
286

<210> 63
<211> 196
<212> DNA
<213> Artificial Sequence

<220>
<223> Trans-spliced product containing Escherichia coli
lacZ gene sequences

<400> 63
ggctttcgct acctggagag acgcgcccgc tgatccttg cgaatacgcc cacgcgatgg
60
gtaacagtct tggcggttgc gctaaataact ggcaggcggt tcgtcagttat ccccgttac
120
aggggctgct gctgttgctg ctgctgagca tgggcgggac atgggcattcc aaggagccac
180
ttcggccacg gtgccg
196

<210> 64
<211> 420
<212> DNA
<213> Artificial Sequence

<220>
<223> Trans-spliced product comprising cystic fibrosis transmembrane regulator-derived sequences and His tag sequences

<400> 64
gctagcgttt aaacgggccc acccatcatt attaggtcat tatccgcgga acattattat
60
aacgttgctc gagtactaac tggaacctct tcttttttt cctgcagact tcacttctaa
120
tcatgattat gggagaactg gagccttcag agggtaaaat taagcacagt ggaagaattt
180
cattctgttc tcagtttcc tggattatgc ctggcaccat taaagaaaaat atcatcttg
240
gcggccgcca ctgtgctgga tatctgcaga attccaccac actggactag tggatccgag
300
ctcggtagcca aggttaagtt taaaccgctg atcagcctcg actgtgcctt ctagttgcca
360
gccatctgtt gtttgcctt ccccggtgcc ttccttgacc ctggaaggtg ccactccac
420

<210> 65
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Splice junction sequence

<400> 65
atgttccagg gcgtgatgat
20

<210> 66
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial sequence comprising sequences derived from Escherichia coli lacZ gene

<400> 66
Asp Tyr Lys Asp Asp Lys
1 5

<210> 67
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial sequence comprising sequence derived
from Escherichia coli lacZ gene

<400> 67
ggagttgatc ccgtc
15

<210> 68
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial sequence comprising sequences derived
from Escherichia coli lacZ gene

<400> 68
gcagtgtcct tgtgcggta ccctgcaggg cggcttc
37

<210> 69
<211> 120
<212> DNA
<213> Artificial Sequence

<220>
<223> PTM binding domain of PTM

<400> 69
gattcactg ctccaattat catcctaagc agaagtgtat attcttattt gtaaagattc
60
tattaactca tttgattcaa aatatttaaa atacttcctg tttcatactc tgctatgcac
120

<210> 70
<211> 24

<212> DNA
<213> Artificial Sequence

<220>
<223> Spacer sequence of PTM

<400> 70
aacattatata taacgttgct cgaa
24

<210> 71
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Branch point, pyrimidine tract and acceptor splice site of PTM

<400> 71
tactaactgg tacctcttct ttttttttg atatcctgca gggcggc
47

<210> 72
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> Donor site and spacer sequence of PTM

<400> 72
tgaacggtaa gtgttatcac cgatatgtgt ctaacctgat tcgggccttc gatacgctaa
60
gatccaccgg
70

<210> 73
<211> 260
<212> DNA
<213> Artificial Sequence

<220>
<223> Binding domain of spacer sequence

<400> 73
tcaaaaagtt ttcacataat ttcttacctc ttcttgaatt catgcttga tgacgcttct
60

gtatctatat tcattcattgg aaacaccaat gatTTTctt taatggtgcc tggcataatc
120
ctggaaaact gataacacaa tgaaattctt ccactgtgct taaaaaaacc ctcttgaatt
180
ctccatttct cccataatca tcattacaac tgaactctgg aaataaaacc catcattatt
240
aactcattat caaatcacgc
260

<210> 74
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 74
cgctggaaaa acgagcttgt tg
22

<210> 75
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 75
actcagtgtg attccacctt ctc
23

<210> 76
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 76
gacctctgca gacttcactt ctaatgatga ttatgg
36

<210> 77
<211> 33
<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 77
ctaggatccc gttctttgt tcttcactat taa
33

<210> 78
<211> 33
<212> DNA
<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 78
ctagggttac cgaagtaaaa ccatacttat tag
33

<210> 79
<211> 35
<212> DNA
<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 79
gcatggttac cctgcagggg ctgctgctgt tgctg
35

<210> 80
<211> 37
<212> DNA
<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 80
ctgaaagctt gttaaccagc tcaccatggt gggcag
37

<210> 81
<211> 23
<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of PTM molecule

<400> 81

accatcatt attaggtcat tat
23

<210> 82

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 82

gatcaaatct gtcgatcctt cc
22

<210> 83

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 83

ctgatccacc cagtcccatt a
21

<210> 84

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 84

gactgatcca cccagtccta ga
22

<210> 85

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Random sequence inserted to replace 3' splice site

<221> misc_feature

<222> (7)...(30)

<223> spacer sequence, see SEQ ID NO: 70

<400> 85

ccgcggnnnn nnnnnnnnnn nnnnnnnnnn gggttccgggt accggcggct tc
52

<210> 86

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 86

ttttatcccc gtttacaggg cggcttcgtc tgggactggg tggatcagtc gctgattaaa
60

tatgatgaaa a

71

<210> 87

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 87

tttggcgata cgccgaacga tcgccagttc tgtatgaacg gtctggtctt tgccgaccgc
60

acgccc

66

<210> 88

<211> 192

<212> DNA

<213> Artificial Sequence

<220>

<223> PTM sequence

<400> 88
acgagcttgc tcatgatgat catggcgag ttagaaccaa gtgaaggcaa gatcaaacat
60
tccggccgca tcagctttg cagccaattc agttggatca tgcccggtac catcaaggag
120
aacataatct tcggcgtcag ttacgacgag taccgctatc gctcggtgat taaggcctgt
180
cagttggagg ag
192

<210> 89
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 89
gagcaggcaa gacgagcttg ctcat
25

<210> 90
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 90
gagaacataa tcttcggcgt cagttacg
28

<210> 91
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 91
gtcagttgga ggaggacatc tccaaagtttg
30

<210> 92

<211> 192
<212> DNA
<213> Artificial Sequence

<220>
<223> PTM exon 10

<400> 92
acgagcttgc tcatgatgat catggcgag ttagaaccaa gtgaaggcaa gatcaaacat
60
tccggccgca tcagctttg cagccattc agttggatca tgcccggtac catcaaggag
120
aacataatct tcggcgtagt ttacgacgag taccgctatc gctcggtgat taaggcctgt
180
cagttggagg ag
192

<210> 93
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> PTM sequence

<400> 93
aaatatcatt ggtgtttctt atgatga
27

<210> 94
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 94
ccaactagaa gaggacatct ccaagttgc
30

<210> 95
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 95
atgatcatgg gcgagttaga accaagttag
30

<210> 96
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 96
aaaatatcat cttgggttt tcctatg
27

<210> 97
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 97
ccaactagaa gaggacatct ccaagtt
27

<210> 98
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> 5' Splice site

<400> 98
cgtttacagg taagtggatc c
21

<210> 99
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> 3' Splice site

<400> 99
ctgcagggcg gcttcgtcta ataatgg
27

<210> 100
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence from trans-splicing domain

<400> 100
tactaactgg tacctcttct ttttttttg atatcctgca gggcggc
47

<210> 101
<211> 1584
<212> DNA
<213> Artificial Sequence

<220>
<223> CFTR PTM

<400> 101
atgcagaggt cgccctctgga aaaggccagc gttgtctcca aactttttt cagctggacc
60
agaccaattt tgaggaaagg atacagacag cgccctggaat tgtcagacat ataccaaatc
120
ccttctgttg attctgctga caatctatct gaaaaattgg aaagagaatg ggatagagag
180
ctggcttcaa agaaaaatcc taaactcatt aatgcccttc ggcgatgttt tttctggaga
240
tttatgttct atggaatctt tttatattta ggggaagtca ccaaagcagt acagcctctc
300
ttactggaa gaatcatagc ttcctatgac ccggataaca aggaggaacg ctctatcgcg
360
atttatctag gcataggctt atgccttctc tttattgtga ggacactgct cctacaccca
420
gccatTTTG gccttcatca cattggaatg cagatgagaa tagctatgtt tagttgatt
480
tataagaaga ctttaaagct gtcaagccgt gttctagata aaataagtat tggacaactt
540
gttagtctcc tttccaacaa cctgaacaaa tttgatgaag gacttgcatt ggcacatttc
600
gtgtggatcg ctcccttgca agtggcactc ctcatggggc taatctggga gttgttacag
660

gcgtctgcct tctgtggact tggttcctg atagtccttg ccctttca ggctggcta
720
gggagaatga tcatgtggact cagagatcg agagctggga agatcagtga aagacttgc
780
attacctcgaaatgtatcgaa gaacatccaa tctgttaagg catactgctg ggaagaagca
840
atggaaaaaa tgattgaaaaa cttaagacaa acagaactga aactgactcg gaaggcagcc
900
tatgtgagat acttcaatag ctcagccttc ttcttctcg ggttcttgc ggtgtttta
960
tctgtgcttc cctatgcact aatcaaagga atcatcctcc ggaaaatatt caccaccatc
1020
tcattctgca ttgttctgca catggcggtc actcggaat ttccctggc tgtacaaaca
1080
tgttatgact ctcttggagc aataaacaaa atacaggatt tcttacaaaa gcaagaatat
1140
aagacattgg aatataactt aacgactaca gaagtagtga tggagaatgt aacagccttc
1200
tggaggagg gatttggggg attattttag aaagcaaaac aaaacaataa caatagaaaa
1260
acttctaattt gtgtatgacag cctcttcttc agtaatttct cacttcttgg tactcctgtc
1320
ctgaaagata ttaatttcaa gatagaaaga ggacagttgt tggcggttgc tggatccact
1380
ggaggcaggca agacgagctt gctcatgtatc atcatggcg agttagaacc aagtgaaggc
1440
aagatcaaac attccggcccg catcagctt tgcagccaaat tcagttggat catgcccggt
1500
accatcaagg agaacataat cttcggcggtc agttacgacg agtaccgcta tcgctcggtg
1560
attaaggcct gtcaagttggaa ggag
1584

<210> 102

<211> 323

<212> DNA

<213> Artificial Sequence

<220>

<223> Trans-splicing domain of CFTR PTM

<400> 102

gtaagatatac accgatatgt gtctaacctg attcgggcct tcgatacgct aagatccacc
60
ggtaaaaaaaat tttcacata atttcttacc tcttcttgc ttcatgctt gatgacgctt
120
ctgttatctat attcatcatt ggaaacacca atgatatttt ctttaatggc gcctggcata
180

atcctggaaa actgataaca caatgaaatt cttccactgt gcttaatttt accctctgaa
240
ttctccattt ctcccataat catcattaca actgaactct ggaaataaaaa cccatcatta
300
ttaactcatt atcaaatcac gct
323

<210> 103
<211> 165
<212> DNA
<213> Artificial Sequence

<220>
<223> PTM Binding domain

<400> 103
gctagcaata atgacgaagc cgcccctcac gctcaggatt cactgcctc caattatcat
60
cctaaggcaga agtgtatatt cttatttgta aagattctat taactcattt gattcaaaat
120
attnaaaata cttcctgttt cacctactct gctatgcacc cgcgg
165

<210> 104
<211> 225
<212> DNA
<213> Artificial Sequence

<220>
<223> Trans-splicing domain of CFTR PTM

<400> 104
aataatgacg aagccgcccc tcacgctcag gattcacttg ccctccaatt atcatcctaa
60
gcagaagtgt atattcttat ttgtaaagat tctattaact cattgattc aaaatattta
120
aaatacttcc tggcacct actctgctat gcacccgcgg aacattatta taacgttgct
180
cgaataactaa ctggtacctc ttctttttt tttgatatcc tgcag
225

<210> 105
<211> 3069
<212> DNA
<213> Artificial Sequence

<220>
<223> CFTR PTM sequence

<400> 105

acttcacttc taatgatgat tatgggagaa ctggagcctt cagaggtaa aattaagcac
60
agtggaaagaa tttcattctg ttctcagttt tcctggatta tgcctggcac cattaaagaa
120
aatatcatct ttgggtgttc ctatgatgaa tatagataca gaagcgtcat caaagcatgc
180
caactagaag aggacatctc caagtttgca gagaaagaca atatagttct tggagaaggt
240
240
ggaatcacac ttagtggagg tcaacgagca agaatttctt tagcaagagc agtatacaaa
300
300
gatgctgatt tgtatttatt agactctcct tttggatacc tagatgttt aacagaaaaaa
360
360
gaaatatttg aaagctgtgt ctgtaaactg atggctaaca aaactaggat tttggtcact
420
420
tctaaaatgg aacatttaaa gaaagctgac aaaatattaa ttttgcata aggtgcgc
480
480
tattttatg ggacattttc agaactccaa aatctacagc cagacttag ctc当地actc
540
540
atgggatgtg attcttcga ccaatttagt gcagaaagaa gaaattcaat cctaactgag
600
600
acttacacc gtttctcatt agaaggagat gctcctgtct cctggacaga aacaaaaaaa
660
660
caatcttta aacagactgg agagttggg gaaaaaagga agaattctat tctcaatcca
720
720
atcaactcta tacgaaaatt ttccattgtg caaaagactc ctttacaaat gaatggcatc
780
780
gaagaggatt ctgatgagcc ttttagagaga aggctgtcct tagtaccaga ttctgagcag
840
840
ggagaggcga tactgcctcg catcagcgtg atcagcactg gccccacgct tcaggcacga
900
900
aggaggcagt ctgtcctgaa cctgatgaca cactcagttt accaaggta gaacattcac
960
960
cggaaagacaa cagcatccac acgaaaagtg tcactggccc ctcaggcaaa cttgactgaa
1020
1020
ctggatataat attcaagaag gttatctcaa gaaactggct tggaaataag tgaagaaatt
1080
1080
aacgaagaag acttaaagga gtgcgtttt gatgatatgg agagcataacc agcagtgact
1140
1140
acatggaaaca cataccttcg atatattact gtccacaaga gcttaatttt tgtgctaatt
1200
1200
tggcgttag taattttctt ggcagaggtg gctgcttctt tggttgtgct gtggctcctt
1260
1260
ggaaacactc ctcttcaaga caaaggaaat agtactcata gtagaaataa cagctatgca
1320
1320
gtgattatca ccagcaccag ttcgtattat gtgtttaca tttacgtggg agtagccgac
1380

actttgcttg ctatgggatt cttcagaggt ctaccactgg tgcatactct aatcacagtg
1440
tcgaaaattt tacaccacaa aatgttacat tctgttcttc aagcacctat gtcaaccctc
1500
aacacgttga aagcaggtgg gattcttaat agattctcca aagatatagc aattttggat
1560
gaccttctgc ctcttaccat atttgacttc atccagttgt tattaattgt gattggagct
1620
atagcagttg tcgcagttt acaaccctac atctttgttg caacagtgcc agtgatagtg
1680
gcttttatta tggtagagc atatttcctc caaacctcac agcaactcaa acaactggaa
1740
tctgaaggca ggagtccaat tttcactcat cttgttacaa gcttaaaagg actatggaca
1800
cttcgtgcct tcggacggca gccttacttt gaaactctgt tccacaaagc tctgaattta
1860
catactgcca actggttctt gtacctgtca acactgcgct ggttccaaat gagaatagaa
1920
atgatttttg tcatcttctt cattgctgtt accttcattt ccatttaac aacaggagaa
1980
ggagaaggaa gagttggat tatcctgact ttagccatga atatcatgag tacattgcag
2040
tgggctgtaa actccagcat agatgtggat agcttgatgc gatctgtgag ccgagtctt
2100
aagttcattt acatgccaac agaaggtaaa cctaccaagt caaccaaacc atacaagaat
2160
ggccaactct cgaaagttat gattattgag aattcacacg tgaagaaaga tgacatctgg
2220
ccctcagggg gccaaatgac tgtcaaagat ctcacagcaa aatacacaga aggtggaaat
2280
gccatattag agaacatttc cttctcaata agtcctggcc agagggtgaa cctcttgaa
2340
agaactggat cagggaaagag tactttgtta tcagctttt tgagactact gaacactgaa
2400
ggagaaatcc agatcgatgg tgtgtcttg gattcaataa ctttgcaca gtggaggaaa
2460
gcctttggag tgataccaca gaaagtattt atttttctg gaacatttag aaaaaacttg
2520
gatccctatg aacagtggag tgatcaagaa atatggaaag ttgcagatga ggttgggctc
2580
agatctgtga tagaacagtt tcctggaaag cttgactttg tccttgaa tggggctgt
2640
gtcctaagcc atggccacaa gcagttgatg tgcttgcta gatctgttct cagtaaggcg
2700
aagatcttgc tgcttgatga acccagtgct cattggatc cagtaacata ccaaataatt
2760
agaagaactc taaaacaagc atttgctgtat tgcacagtaa ttctctgtga acacaggata
2820

gaagcaatgc tggaaatgcc acaattttg gtcatagaag agaacaagt gcggcagttac
2880
gattccatcc agaaaactgct gaacgagagg agcctttcc ggcaagccat cagccctcc
2940
gacagggtga agctttcc ccaccggaac tcaagcaagt gcaagtctaa gccccagatt
3000
gctgctctga aagaggagac agaagaagag gtgcaagata caaggcttca tcattcatcat
3060
catcattag
3069

<210> 106
<211> 131
<212> DNA
<213> Artificial Sequence

<220>
<223> Binding domain of mouse factor VIII PTM

<400> 106
ctcgagctta cctgaactaa ttttttagaa tattaaaatc ctaagctttt atatcttat
60
ccctctatct tttgctctct atccaatttt tattaactta gactttaaaa agaaaacttat
120
gagaaaaatt t
131

<210> 107
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Spacer sequence of PTM

<400> 107
ccgcggaaca ttattataac gttgctcgaa tactaactgg tacctcttct ttttttttg
60
atatcctgca g
71

<210> 108
<211> 527
<212> DNA
<213> Artificial Sequence

<220>
<223> Chicken beta actin promoter sequences

<400> 108
ccatggtcga cgtagcccc acgttctgct tcactctccc catctcccc ccctccccac
60
ccccaaattt gtatttattt atttttaat tattttgtgc agcgatgggg gcgggggggg
120
ggggggggcg cgccgcaggc gggcggggc gggcgaggc gcgggcggg gcgaggcgga
180
gaggtgcggc ggcagccaat cagagcggcg cgctccgaaa gttccttta tcgcgaggcg
240
gcggcggcgg cggccctata aaaagcgaag cgcgccggcgg ccggagtcg ctgcgacgct
300
gccttcgccc cgtcccaacc tccgcctcga gcttacctga actaatttt tagaatatta
360
aaatcctaag ctttatact cctatccctc tatctttgc tctctatcca atttttatta
420
acttagactt taaaaagaaa cttatgagaa aaatttccgc ggaacattat tataacgttg
480
ctcgaatact aactggtacc tcttctttt ttttgatat cctgcag
527

<210> 109

<211> 169

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence not included in construct

<400> 109

cggccctcg cgccgcccgc cccggctctg actgaccgcg ttactccac aggtgagcgg
60
gcgggacggc cttctccctc cggctgtaa ttagcgcttg gtttaatcac ggcttggttc
120
tttctgtgg ctgcgtaaa gccttgaggc gctccggag gaattcgta
169

<210> 110

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> F8 PTM sequences

<400> 110

ggagtcgctg cgacgctgcc ttccggccgt gccaacctcc gc
42

<210> 111
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> F8 PTM sequences

<400> 111
ctcgagcacc gatatcgtaa ct
22

<210> 112
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> Exon 26, Flag tag, stop sequences of mouse factor
VIII PTM

<400> 112
gaggcccagc agcaatacga ctacaaggac gacgatgaca agtgagttta aac
53

<210> 113
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Spacer sequences of human or canine factor VIII
PTM

<400> 113
ccgcggaaaca ttattataac gttgctcgaa tactaactgg tacctcttct ttttttttg
60
atatcctgca g
71

<210> 114
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Branch point and polypyrimidine tract sequences of

human papilloma virus PTM

<400> 114

tactaactgg taccttttctt ttttttttg atatcctgca gggcggc
47

<210> 115

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Branch point and polypyrimidine tract of human
papilloma virus PTM

<400> 115

tactaactgg taccttttctt ttttttttg atatcctgca gggcggc
47

<210> 116

<211> 80

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of human papilloma virus PTM

<400> 116

cagttaatac acctaattaa caaatcacac aacgctttgt tgtattgctg ttctaatgtt
60

gttccataaca cactataaca

80

<210> 117

<211> 149

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of human papilloma virus PTM

<400> 117

cagttaatac acctaattaa caaatcacac aacgctttgt tgtattgctg ttctaatgtt
60

gttccataaca cactataaca ataatgtcta tactcactaa ttttagaata aaactttaaa
120

catttatcac atacagcata tcgattccc

149

<210> 118

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of human papilloma virus PTM

<400> 118

gatgatctgc aacaagacat acatcgaccg gtcca

35

<210> 119

<211> 104

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of human papilloma virus PTM

<400> 119

cttcaggaca cagtggcttt tgacagttaa tacacctaata taacaaatca cacaacggtt
60

tgttgtattt cagttctatg ttgttccata cacactataaa caat

104

<210> 120

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of human papilloma virus PTM

<400> 120

gatgatctgc aacaagac

18

<210> 121

<211> 99

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of human papilloma virus PTM

<400> 121

gacacagtgg ctttgacag ttaatacacc taattaacaa atcacacaac ggtttgggt
60
attgcagttc taatgttggtt ccatacacac tataacaat
99

<210> 122
<211> 138
<212> DNA
<213> Artificial Sequence

<220>
<223> Binding domain of human papilloma virus PTM

<400> 122
gatgatctgc aacaagacat acatcgaccg gtccacttca ggacacagtg gctttgaca
60
gttaatagac ctaattaaca aatcacacaa cggttggttg tattgcagtt ctaatgttgt
120
tccatacaca ctataaca
138

<210> 123
<211> 89
<212> DNA
<213> Artificial Sequence

<220>
<223> Binding domain of human papilloma virus PTM

<400> 123
gatgatctgc aacaagacga cacagtggct tttgacagtt aatacaccta attaacaat
60
cacacaacgg tttgttgtat tgcagttct
89

<210> 124
<211> 66
<212> DNA
<213> Artificial Sequence

<220>
<223> Trans-spliced product

<400> 124
agaatgtgtg tactgcaagc aacagttact gcgacgtgag ggccggcttcg tctgggactg
60
gggtgga
66

<210> 125
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Trans-spliced product

<400> 125
gtgtactgca agcaacagtt actgcgacgt gagggcggct tcgtctggta ctgggtggat
60
cagtcgctga t
71